NEWS RELEASE

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OFFICE of AEROSPACE RESEARCH

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Material Also Improved

AF Finds Way to Recover Costly Balloons for Reuse

The Air Force has developed and proved a new method enabling the recovery and consequent reuse of expensive research balloons which in the past were lost after one-time-only flights.

At the same time, Office of Aerospace Research (OAR) scientists demonstrated the reliability of a new, lightweight balloon material in two successive test flights from Holloman AFB, N. M.

The recovery system brings the balloons back to earth intact whereas they formerly were destroyed after releasing their scientific payloads at the end of a mission. Some 80 research balloons --- costing from $2,000 to $30,000 each --- have been launched this year alone by the Air Force Cambridge Research Laboratories (AFCRL), a branch of OAR.

A large savings in obtaining vital data from the atmosphere via balloons will result from the development. The two initial test

flights and recoveries -- both successful -- were made in May and late August from Holloman.

Developed by James Payne of AFCRL, the recovery system employs two parachutes in tandem, the lower one to return the scientific payload and the upper one to return the balloon. It works in this manner:

Following controlled deflation of the balloon, the upper parachute -- with a sizeable opening in its center through which the neck of the balloon is fitted -- rides up the balloon's neck as the spheroid is deflated.

The center hole has a cylindrical nylon sleeve attached to it. The sleeve envelopes the balloon material as it deflates and literally wraps it in a protective nylon package for its return to the earth and subsequent reuse.

In the two successful tests, OAR scientists also proved the reliability of the new lightweight balloon material for future flights. OAR's goal has always been to develop the lightest but strongest balloon material possible so that it can hoist the heaviest scientific payloads possible to the highest altitude possible.

The new material, developed by Arthur Korn of AFCRL, takes this theory a step closer to the ultimate.

It consists of a pattern of dacron threads laminated to a mylar base film. The thread pattern is varied so that strength is added at those points where the greatest surface stress occurs.

The "flying loom thread" makes it possible to tailor balloon material to match payload and altitude requirements of particular missions, thus achieving optimum strength-weight ratios.

Scientists expect the development to enable balloons to soar up to 180,000 feet, compared to the approximate present limit of 150,000 feet.

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